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Racket Assignment #1:

Getting Acquainted with Racket/DrRacket + LEL Sentence Generation

Abstract:

This document displays and demonstrates a small sample of the functionality of racket by providing example source code and demo output. A screenshot of sample source code, in the DrRacket IDE of the LEL Sentence generator is provided along with a sample output of the compiled and executed source code.

Source Code for the LEL Sentence Generator

lel_generator.rkt - DrRacket*

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lel_generator.rkt (define ...) ➡

```
1 | #lang racket
2 |
3 | ;-----
4 | ; LEL sentence generator, with helper PICK,
5 | ; serveral applications of APPEND, several
6 | ; applications of LIST, and one use of MAP
7 | ; with a LAMBDA function.
8 |
9 | (define (pick list)
10 |   (list-ref list (random (length list))))
11 | )
12 |
13 | (define (noun)
14 |   (list (pick ' (robot baby toddler hat dog))))
15 | )
16 |
17 | (define (verb)
18 |   (list (pick ' (kissed hugged protected chased hornswoggled))))
19 | )
20 |
21 | (define (article)
22 |   (list (pick ' (a the))))
23 | )
24 |
25 | (define (qualifier)
26 |   (pick ' ((howling) (talking) (dancing)
27 |            (barking) (happy) (laughing)
28 |            () () () () () () () ))
29 | )
30 | )
31 | )
32 |
33 | (define (noun-phrase)
34 |   (append (article) (qualifier) (noun)))
35 | )
36 | (define (sentence)
37 |   (append (noun-phrase) (verb) (noun-phrase)))
38 | )
39 |
40 | (define (ds) ;display a sentence
41 |   (map
42 |     (lambda (w) (display w) (display " ")))
43 |     (sentence)
44 |   )
45 |   (display ""); an artificial something
46 | )
```

> (sentence)

Demo for the LEL Sentence Generator

> (pick'(red yellow blue))

'red

> (pick'(red yellow blue))

'red

> (pick'(red yellow blue))

'yellow

> (pick'(red yellow blue))

'red

> (pick'(Racket Prolog Haskell Rust))

'Racket

> (pick'(Racket Prolog Haskell Rust))

'Racket

> (pick'(Racket Prolog Haskell Rust))

'Haskell

> (pick'(Racket Prolog Haskell Rust))

'Racket

> (noun)

'(baby)

> (noun)

'(dog)

> (noun)

'(dog)

> (noun)

'(dog)

> (verb)

'(kissed)

> (verb)

'(kissed)

> (verb)

'(chased)

> (verb)

'(hornswoggled)

> (article)

'(a)

> (article)

'(the)

> (article)

'(the)

> (article)

'(the)

> (qualifier)

'(howling)

> (qualifier)

'(talking)

> (qualifier)

'(howling)

> (qualifier)

'(dancing)

> (qualifier)

'(happy)

> (qualifier)

'()

> (qualifier)

'()

> (qualifier)

'()

> (qualifier)

'()

> (qualifier)

'()

> (qualifier)

'(dancing)

> (qualifier)

'()

> (qualifier)

'(howling)

> (qualifier)

'(barking)

> (qualifier)

'(happy)

> (qualifier)

'()

> (noun-phrase)

'(a robot)

> (noun-phrase)

'(a howling dog)

> (noun-phrase)

'(a dog)

> (noun-phrase)

'(a talking baby)

> (noun-phrase)

'(a talking hat)

> (noun-phrase)

'(a dancing baby)

> (noun-phrase)

'(the talking baby)

> (noun-phrase)

'(the robot)

> (sentence)

'(the robot hornswoggled a dog)

> (sentence)

'(the toddler chased a barking baby)

> (sentence)

'(the laughing toddler kissed the robot)

> (sentence)

'(a robot kissed a barking dog)

> (sentence)

'(the howling dog hugged the talking hat)

> (sentence)

'(a howling toddler chased a happy robot)

> (sentence)

'(the barking hat hugged the barking toddler)

> (sentence)

'(a happy robot hornswoogled a howling dog)

> (ds)

the barking toddler kissed a howling baby

> (ds)

a baby hugged the toddler

> (ds)

a laughing toddler chased a howling dog

> (ds)

a toddler kissed the laughing baby

> (ds)

a baby hugged a toddler

> (ds)

the toddler hugged the robot

> (ds)

the dog chased a toddler

> (ds)

the robot hugged the hat

> (ds)

a toddler protected the robot

> (ds)

a dog hornswoggled a happy robot

> (ds)

the laughing robot chased the toddler

> (ds)

a baby hugged the talking toddler

>